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8 **UNITED STATES DISTRICT COURT**
EASTERN DISTRICT OF WASHINGTON

9 NATIONAL SHOOTING
10 SPORTS FOUNDATION, INC.,

11 Plaintiff,

12 v.
13 ROBERT W. FERGUSON,
14 Attorney General of the State of
Washington,

15 Defendant.

NO. 2:23-cv-00113-MKD

DECLARATION OF DR.
FREDERICK RIVARA, MD, IN
SUPPORT OF DEFENDANT'S
OPPOSITION TO PLAINTIFF'S
MOTION FOR PRELIMINARY
INJUNCTION

16 I, Frederick Rivara, MD, declare as follows:

17 1. I am over the age of 18, competent to testify as to the matters herein,
18 and make this declaration based on my personal knowledge.

19 2. I have been asked by the Washington Office of the Attorney General
20 to render an opinion on the public health crisis of gun violence in Washington
21 State and nationwide, especially with regard to minors.

1 **I. BACKGROUND AND QUALIFICATIONS**

2 3. I am a Professor of Pediatrics and Adjunct Professor of
3 Epidemiology at the University of Washington, where I have been a faculty
4 member for the last 38 years. I am also the Vice Chair for Academic Affairs for
5 the Department of Pediatrics at the University of Washington, as well as the
6 Seattle Children's Hospital Guild Association Endowed Chair in Pediatric Health
7 Outcomes Research. I practice clinically at Harborview Medical Center,
8 Washington State's only Level I regional adult and pediatric trauma center.

9 4. I have devoted my career to the study and prevention of injuries to
10 individuals of all ages, and this has included injuries related to firearms. *See*
11 Exhibit A (curriculum vitae). I have published over 760 articles in the peer-
12 reviewed scientific literature, mostly on injuries. I founded and led the University
13 of Washington's Firearm Injury & Policy Research Program for three years,
14 which is funded by the State of Washington. I have been recognized for my work
15 with a number of awards, including the American Academy of Pediatrics, Section
16 on Injury and Poison Prevention, Physician Achievement Award, 1994; the
17 American Public Health Association, Injury Control and Emergency Health
18 Services Section Distinguished Career Award, 1995; the Charles C. Shepard
19 Science Award, Centers for Disease Control and Prevention, 1998; the Injury
20 Free Coalition Prevention Pioneer Award, 2015; the Pediatric Trauma Society
21 Lifetime Achievement Award, 2016; and the Joseph St. Geme Jr Leadership

1 award from Federation of Pediatric Organizations, 2021; and election to the
 2 National Academy of Medicine (formerly Institute of Medicine), 2005.

3 5. I have provided expert witness testimony in *Sullivan et al. v*
 4 *Ferguson et al.*, No. 3:22-cv-5403 (W.D. Wash.); *Brumback et al. v Ferguson et*
 5 *al.*, No. 1:22-cv-03093 (E.D. Wash.); and *Lafferty et al. v. Amundson et al.*, No.
 6 2020CV0346 (Wis. Ct. App.).

7 6. I am being compensated for services performed at an hourly rate of
 8 \$500. The compensation I receive is not in any way dependent on the outcome of
 9 this or any related proceeding, or on the substance of my opinions.

10 **II. PUBLIC HEALTH CRISIS OF GUN VIOLENCE**

11 7. The United States, including the state of Washington, is
 12 experiencing a public health crisis from gun violence. In 2018 and 2019, the
 13 United States experienced approximately 39,000 deaths each year from
 14 firearms.¹ This increased to 44,694 in 2020 and peaked at 48,405 in 2021.²
 15 Preliminary estimates for 2022 indicate that there were 40,589 deaths from

17 ¹ CDC WONDER, *National Center for Health Statistics Mortality Data on*
 18 *CDC Wonder*, <https://wonder.cdc.gov/mcd.html> (last visited May 26, 2023).
 19 Data are from the final Multiple Cause of Death Files, 2018–21, and from
 20 provisional data for years 2022–23, as compiled from data provided by the 57
 21 vital statistics jurisdictions through the Vital Statistics Cooperative Program.

22 ² *Id.*

firearms in 2022.³ Of these deaths, 2,586 and 2,180 children and youth under age 18 died from firearms in 2021 and 2022, respectively.⁴

8. Washington State has experienced similarly high rates of firearm deaths. Firearm deaths increased from 794 in 2018 to a peak of 888 in 2021, and an estimated 839 in 2022.⁵ In 2021, 44 of these deaths were to children and youth under 18 years of age.⁶ In King County, 43% of shooting victims in 2020 were under the age of 25.⁷

9. This increase in deaths from firearms has resulted in a dramatic consequence: more children and youth in the United States die from firearms than from motor vehicle crashes, which for decades had been the leading cause of

3 Id

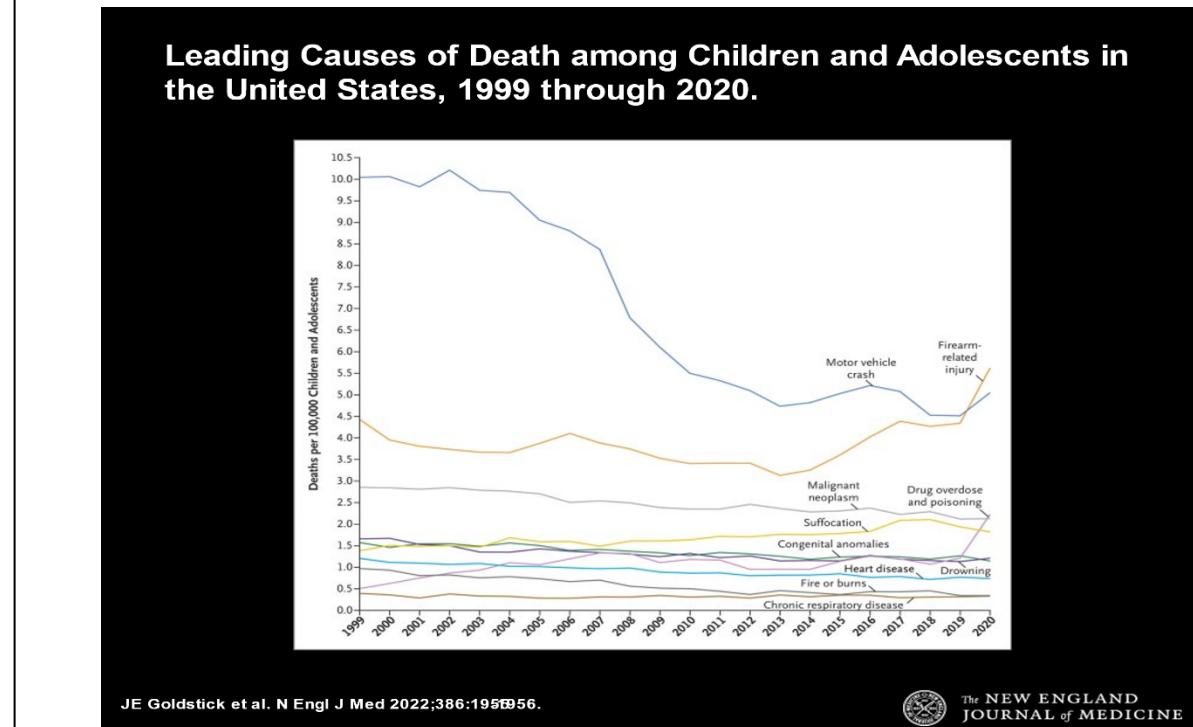
4 *Id*

⁵ CDC, WISQARS Fatal and Nonfatal Injury Reports, *Injury Counts and Rates*, <https://wisqars.cdc.gov/reports/> (last visited May 26, 2023).

6 *Id.*

⁷ King County Prosecuting Attorney's Office *2020 King County Firearm Violence: Year End Report* (Jan. 2021), https://kingcounty.gov/~/media/depts/prosecutor/documents/2021/Shots_Fired_Final_2020_Year_End_Report.ashx?l=a=en.

injury and deaths for children and youth in the United States.⁸ In Washington State, the number of deaths from firearms has exceeded those from motor vehicles every year since 2008.⁹

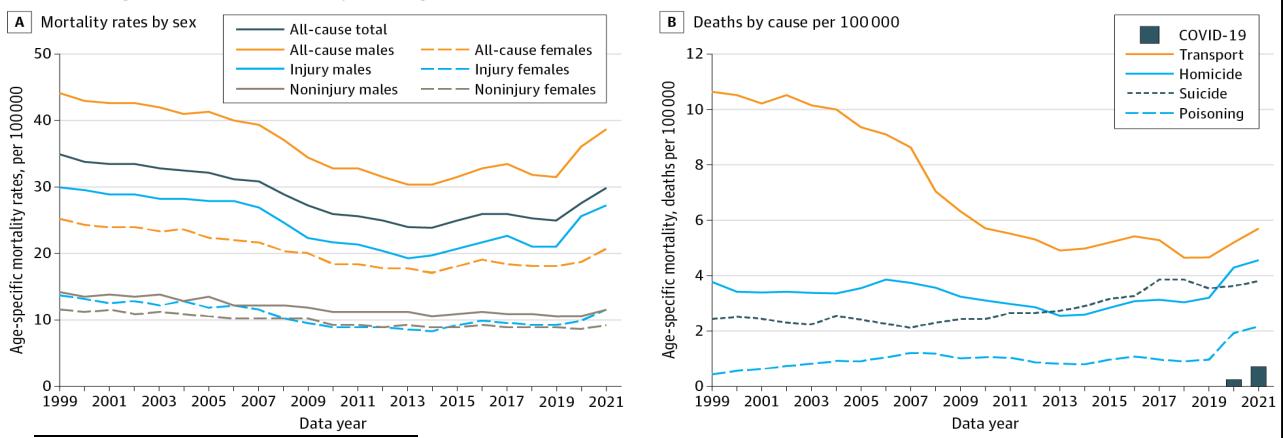


10. Although life expectancy in industrialized countries has risen over the past century, life expectancy in the United States stopped increasing after 2010, a trend attributed to rising mortality rates for adults between the ages of 25

⁸ Jason E. Goldstick, et al., *Current Causes of Death in Children and Adolescents in the United States*, 386 NEW ENG. J. MED. 1955–56 (2022), <https://www.nejm.org/doi/10.1056/NEJMc2201761>.

⁹ CDC, WISQARS Fatal and Nonfatal Injury Reports, *Injury Counts and Rates* (2019), https://bit.ly/wisqars_cdc_reports_WA (last visited May 26, 2023).

1 and 64.¹⁰ Although midlife mortality rates increased over the past decade,
 2 mortality rates among children and older adults continued to decrease. The
 3 COVID-19 pandemic altered this trend and resulted in a sharp increase in
 4 mortality among older adults. However, pediatric mortality rates also increased
 5 during this time period, though COVID-19 contributed little to this surge. This
 6 reversal in the pediatric mortality trajectory was caused not by COVID-19, but
 7 by injuries. Firearms play a central role in this increase. Firearms are the leading
 8 cause of death among children and youth between the ages of 1 and 19,
 9 and accounted for nearly half (47.8%) of the increase in all-cause mortality
 10 among children and young adults in 2020.¹¹



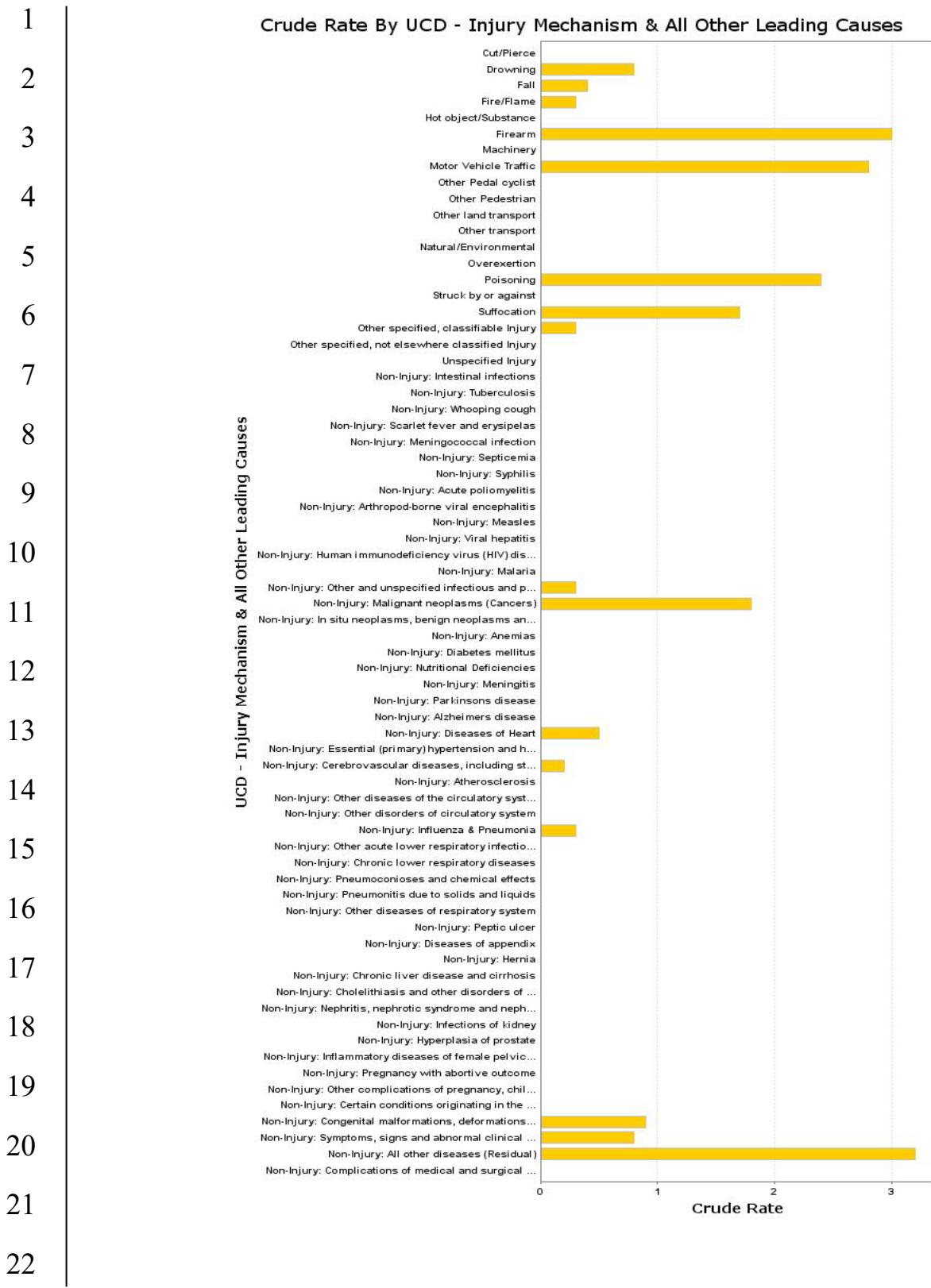
17 ¹⁰ Steven H. Woolf & Heidi Schoomaker, *Life Expectancy and Mortality*
 18 *Rates in the United States, 1959-2017*, 322 JAMA 1996–2016 (2019),
 19 <https://doi.org/10.1001/jama.2019.16932>.

20 ¹¹ Steven H. Woolf, et al., *The New Crisis of Increasing All-Cause*
 21 *Mortality in US Children and Adolescents*, 329 JAMA 975–76 (2023),
 22 <https://doi.org/10.1001/jama.2023.3517>.

1 11. The chart on the next page shows deaths in the state of Washington
2 to children and youth between the ages of 1 and 19 from 2018 to the present.¹² It
3 shows how firearms are not only the leading cause of injury death to youth, *but*
4 *the leading cause of any death to youth beyond the age of 1 year.*

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¹² *Supra* note 1.



1 12. Youth access to firearms is a critical part of this problem. Studies
 2 show that school-aged youth who see a firearm are likely to pick it up, handle it,
 3 and pull the trigger.¹³ This can result in tragic consequences for youth and their
 4 families and indicates that access to firearms in this age group should be very
 5 restricted.

6 13. Children and youth carrying firearms is all too common. In rural
 7 communities, one in five youth in grades 6–12 have reported carrying a firearm
 8 at least once.¹⁴ Gun carrying is also more common among youth with a history
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 11 ¹³ Kelly P. Dillon & Brad J. Bushman, *Effects of Exposure to Gun Violence*
 12 *in Movies on Children's Interest in Real Guns*, 171 JAMA PEDIATRICS 1057–62
 13 (2017), <https://doi.org/doi:10.1001/jamapediatrics.2017.2229>; Justin H. Chang
 14 & Brad J. Bushman, *Effect of Exposure to Gun Violence in Video*
 15 *Games on Children's Dangerous Behavior With Real Guns: A Randomized*
 16 *Clinical Trial*, 171 JAMA NETWORK OPEN, May 31, 2019, at 2, 8–9,
 17 <https://doi.org/10.1001/jamanetworkopen.2019.4319>; Geoffrey A. Jackman,
 18 et al., *Seeing Is Believing: What Do Boys Do When They Find*
 19 *a Real Gun?*, 107 AM. ACAD. PEDIATRICS 1247–50 (2001),
 20 <https://doi.org/10.1542/peds.107.6.1247>.

21 ¹⁴ Ali Rowhani-Rahbar, et al., *Effect of the Communities That Care*
 22 *Prevention System on Adolescent Handgun Carrying: A Cluster-Randomized*

1 of suicidal ideation or attempt, substance misuse, and prior violent-related
 2 experiences.¹⁵ While carrying a gun, youth have at least a 2% chance of being
 3 shot compared to close to 0% for periods of non-gun carrying.¹⁶ Youth who
 4 owned a firearm during adolescence have a 9-fold increased likelihood of
 5 perpetrating firearm violence as an adult.¹⁷

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 8 *Clinical Trial, JAMA NETWORK OPEN, April 6, 2023, at 8,*
 9 [https://doi.org/10.1001/jamanetworkopen.2023.6699.](https://doi.org/10.1001/jamanetworkopen.2023.6699)

10 ¹⁵ Thomas R. Simon, et al., *Gun Carrying Among Youths, by Demographic*
 11 *Characteristics, Associated Violence Experiences, and Risk Behaviors - United*
 12 *States, 2017-2019*, CDC Morbidity and Mortality Weekly Report, July 29, 2022,
 13 at 954, <https://www.cdc.gov/mmwr/volumes/71/wr/pdfs/mm7130a1-H.pdf>.

14 ¹⁶ David Hureau & Theodore Wilson, *The Co-Occurrence of Illegal Gun*
 15 *Carrying and Gun Violence Exposure: Evidence for Practitioners From Young*
 16 *People Adjudicated for Serious Involvement in Crime*, 190 AM. J. EPIDEMIOLOGY
 17 2544–51 (2021), <https://doi.org/10.1093/aje/kwab188>.

18 ¹⁷ Linda A. Teplin, et al., *Association of Firearm Access, Use, and*
 19 *Victimization During Adolescence With Firearm Perpetration During Adulthood*
 20 *in a 16-Year Longitudinal Study of Youth Involved in the Juvenile Justice System*,
 21 *JAMA NETWORK OPEN*, Feb. 4, 2021, at 6, <https://doi.org/10.1001/jamanetworkopen.2020.34208>.

1 14. State firearm laws that restrict access to firearms for children and
 2 youth make a noticeable difference. Fewer youth carry firearms in states with
 3 more restrictive firearm possession laws.¹⁸ Conversely, less restrictive laws are
 4 associated with greater harms. When a “permit to purchase” law was repealed in
 5 Missouri, there was a 21.8% increase in firearm suicide rates in young adults.¹⁹
 6 Lowering the minimum age of concealed carry to from 21 to 19 years in Missouri
 7 resulted in a 32% increase in firearm suicide rates among youth ages 14–18.²⁰

8 15. The issue of adolescent firearm carrying and possession must be
 9 viewed in the context of what is known about adolescent brain development.²¹
 10 Cognitive control develops during adolescence and matures through the twenties.
 11 Risk-taking behaviors peak during adolescence before the maturation of

13 ¹⁸ Beidi Dong & David Wilson, *State Firearm Legislation and*
 14 *Youth/Young Adult Handgun Carrying in the United States*, 71 J. ADOLESCENT
 15 HEALTH 751–56 (2022), <https://doi.org/10.1016/j.jadohealth.2022.08.009>.

16 ¹⁹ Apurva Bhatt, et al., *Association of Changes in Missouri Firearm Laws*
 17 *With Adolescent and Young Adult Suicides by Firearms*, JAMA NETWORK OPEN,
 18 Nov. 4, 2020, at 1, <https://doi.org/10.1001/jamanetworkopen.2020.24303>.

19 ²⁰ *Id.*

20 ²¹ Elizabeth P. Shulman, et al., *The Dual Systems Model: Review,*
 21 *Reappraisal, and Reaffirmation*, 17 J. DEVELOPMENTAL COGNITIVE
 22 NEUROSCIENCE 103–17, 2016, <https://doi.org/10.1016/j.dcn.2015.12.010>.

cognitive control. As a result of this dual system, adolescence is marked by a period of risk-taking, that if accompanied by firearm possession, can have tragic consequences.

16. Children and youth exposed to gun violence, and mass shootings in particular, suffer from a variety of consequences.²² This includes PTSD, decreased school performance, disruptive behavior at school, depression, and anxiety.²³ Adults exposed to gun violence and mass shootings also have a heightened risk of PTSD, depression, anxiety, subsequent substance abuse, sleep problems, panic disorder, social phobia, increased fear, and decreased sense of safety.²⁴

17. Injuries from firearms are also a major burden on the healthcare system. Gun violence victims are often brought to trauma centers such as Harborview Medical Center. Unfortunately, the difficulty in treating victims of

²² Aine Travers, et al., *Youth Responses to School Shootings: a Review*, 20 CURRENT PSYCHIATRY REPS. 1535–1645 (2018), <https://doi.org/10.1007/s11920-018-0903-1>.

23 *Id.*

24 Id.

firearm injuries has increased in recent years.²⁵ The severity of gunshot wound (GSW) victims has likely increased due to more bullet wounds per person and the increased severity of those wounds.²⁶ In a study of national data from trauma centers between 2003 and 2013, colleagues and I showed that the case fatality rate decreased during this period for motor vehicle crash victims, but did not decrease for firearm injury victims.²⁷ Case-fatality percentages across nearly all injury severity categories decreased for motor vehicle crash victims, yet stayed flat for firearm assault and unintentional firearm injury victims.²⁸

18. In my opinion, as a matter of public health, Washington has a substantial basis for mitigating the gun violence crisis and seeking accountability from firearm industry members for their role in contributing to the crisis of gun violence. This includes efforts to prevent unlawful marketing to, or otherwise targeting, youth to encourage them to purchase and possess firearms.

²⁵ Angela Sauaia, et al., *Fatality and Severity of Firearm Injuries in a Denver Trauma Center, 2000-2013*, 315 JAMA 2465–67 (2016), <https://doi.org/10.1001/jama.2016.5978>.

²⁶ *Id.*

²⁷ Robert A. Tessler et al., *Trends in Firearm Injury and Motor Vehicle Crash Case Fatality by Age Group, 2013-2013*, 154 JAMA SURGERY 305–10 (2019), <https://doi.org/doi:10.1001/jamasurg.2018.4685>.

²⁸ *Id.*

1 I declare under penalty of perjury under the laws of the State of
2 Washington and the United States of America that the foregoing is true and
3 correct.

4 DATED this 30 day of May, 2023, at Seattle, Washington.

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7 FREDERICK RIVARA
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CERTIFICATE OF SERVICE

I hereby certify that on this day I caused the foregoing document to be electronically filed with the Clerk of the Court using the Court's CM/ECF System which will serve a copy of this document upon all counsel of record.

I declare under penalty of perjury under the laws of the State of Washington and the United States of America that the foregoing is true and correct.

DATED this 1st day of June, 2023, at Olympia, Washington.

s/ *Leena Vanderwood*
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